



April 13, 2001

Applicant : RICHARD G. HYATT Jr.

Serial No.: 08/720,070 (CPA application)

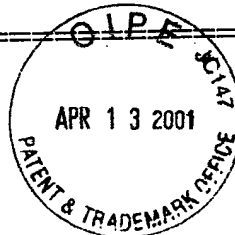
Filed: 27 September 1996

Art Unit: 3627

For: ELECTROMECHANICAL CYLINDER PLUG

Document(s) filed:

1. AMENDMENT in response to Paper No. 39 of 11/13/2000;
2. PETITION FOR EXTENSION OF TIME; AND
3. FEE TRANSMITTAL AND A CHECK FOR \$294.00.



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**FEE TRANSMITTAL**

Patent fees are subject to annual revision.

**Complete If Known**

Application Number

08/720,070

Filing Date

27 September 1996

First Named Inventor

RICHARD G. HYATT Jr.

Examiner Name

BOUCHER, D.

Group/Art Unit

3627

TOTAL AMOUNT OF PAYMENT

(\$)294.00

Attorney Docket No.

P53821C

**METHOD OF PAYMENT (check one)****FEE CALCULATION (continued)**1. ☐

The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

**3. ADDITIONAL FEES**Deposit Account Number: 02-4943

Deposit Account Number: \_\_\_\_\_

☐

Charge Any Additional Fee Required Under 37 C.F.R. §1.16 and

☐

Applicant claims small entity status. See 37 CFR 1.27

**2. ■ Payment Enclosed: (CHECK #39446)**☒ Check ☐ Credit Card ☐ Money Order ☐ Other**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	\$
106	320	206	160	Design filing fee	\$
107	490	207	245	Plant filing fee	\$
108	710	208	355	Reissue filing fee	\$
114	150	214	75	Provisional filing fee	\$

**SUBTOTAL (1)** (\$).00**2. EXTRA CLAIM FEES**

	Extra Claims	Fee from below	Fee Paid
Total claims	116-105 = 11	x \$9.00	= \$99.00
Independent Claims	23 - 23 = 0	x 40.00	= \$0.00

Multiple Dependent

=

\*\* or number previously paid, if greater; For Reissues, see below

Large Entity Small Entity

Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

**SUBTOTAL (2)** (\$)99.00

Large Entity Fee Code	Small Entity Fee Code	Fee (\$)	Fee (\$)	Fee Description	Fee Paid
105	1356t	205	65	Surcharge-late filing fee or oath	\$
127	50	227	25	Surcharge-late provisional filing fee or cover sheet	\$
139	130	139	130	Non-English specification	\$
147	2,520	147	2,520	For filing a request for reexamination	\$
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	\$
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	\$
115	110	215	55	Extension for reply within first month	\$
116	390	216	195	Extension for reply within second month	\$ 195.00
117	890	217	445	Extension for reply within third month	\$
118	1,390	218	695	Extension for reply within fourth month	\$
128	1,890	228	945	Extension for reply within fifth month	\$
119	310	219	155	Notice of Appeal	\$3
120	310	220	155	Filing a brief in support of an appeal	\$
121	270	221	135	Request for oral hearing	\$
138	1,510	138	1,510	Petition to institute a public use proceeding	\$
140	110	240	55	Petition to revive - unavoidable	\$
141	1,240	241	620	Petition to revive - unintentional	\$
142	1,240	242	620	Utility issue fee (or reissue)	\$
143	440	243	220	Design issue fee	\$
144	600	244	300	Plant issue fee	\$
122	130	122	130	Petitions to the Commissioner	\$
123	50	123	50	Petitions related to provisional applications	\$
126	240	126	240	Submission of Information Disclosure Statement	\$
581	40	581	40	Recording each patent assignment per property (Times number of properties)	\$
146	710	246	355	Filing a submission after final rejection (37 C.F.R. §1.129(a))	\$
149	710	249	355	For each additional invention to be examined (37 C.F.R. §1.129(b))	\$
Other Fee (specify) _____					\$
Other Fee (specify) _____					\$
** Reduced by Basic Filing Fee Paid					
<b>SUBTOTAL (3)</b>					<b>\$ 195.00</b>

**SUBMITTED BY****Complete (if applicable)**

Typed or Printed Name

Robert E. Bushnell, Esq.

Reg. Number

27,774

Signature



Date

April 13, 2001

Deposit Account User ID

02-4943

REB/jx

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39446

15-7011/2540

4/13/2001

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Two Hundred Ninety-Four and 00/100\*\*\*\*\*

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Commissioner of Patents & Trademarks  
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S.N.: 08/720,070 - extra claim coverage & eot.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

RICHARD G. HYATT Jr.

Serial No.: 08/720,070 (CPA application) Examiner: BOUCHER, D.

Filed: 27 September 1996 Art Unit: 3627

For: ELECTROMECHANICAL CYLINDER PLUG

**PETITION FOR EXTENSION OF TIME**


Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Pursuant to 37 C. F.R. §1.136(a), please extend the time for responding to the Office action dated on the 13<sup>th</sup> of November 2000 (Paper No. 39), **for two months to and through 13 April 2001**. A check including the \$195.00 two-month fee is enclosed.

Should any additional fees be required under 37 C.F.R. §1.16 or 37 C.F.R. §1.17, please charge them to our Deposit Account No. 02-4943 and advise us accordingly. Also, should any additional time be required, please accept this as a petition for such additional extension of time and charge our Deposit Account No. 02-4943 and advise us accordingly.

Respectfully submitted,

  
Robert E. Bushnell  
Reg. No.: 27,774

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Washington, D.C. 20005  
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Date: 13 April 2001

P53821C  
I.D.: REB/jx

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

RICHARD G. HYATT Jr.

Serial No.: 08/720,070 (CPA application) Examiner: BOUCHER, D.

Filed: 27 September 1996 Art Unit: 3627

For: ELECTROMECHANICAL CYLINDER PLUG

AMENDMENT

Assistant Commissioner  
for Patents  
Washington, D.C. 20231

Sir:

Entry of the following amendments in response to the Office action dated on the 13<sup>th</sup> of November 2000 (Paper No. 39), re-examination and reconsideration, are respectfully requested. A Petition for Extension of Time is being filed concurrently.

Folio: P53821C  
Date: April 13, 2001  
I.D.: REB/jx

Ex Received: 4/20/2001

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CLEAN VERSION OF AMENDMENTS

IN THE CLAIMS

Please amend claims 6 through 8, 11, 13, 25, 43, 56, 64, 85, 89, 91 and 101, as follows:

1           6. (Four Times Amended)   A lock, comprising:

2                   a cylinder containing a hollow recess defining a longitudinal axis;

3                   a plug bearing a plurality of open radially oriented apertures forming an array, said  
4   plug being rotatable around said longitudinal axis while resident within said hollow recess, said plug  
5   comprising:

6                   a first base bearing a keyway providing a first electrical conductor and an  
7   orifice spaced-apart from and separated by a mass of said plug from said keyway;

8                   a second base separated by an axial length of said plug from said first base,  
9   said second base bearing means for supporting a cam;

10                  an exterior surface extending between and engaging said first base and said  
11   second base;

12                  a sidebar positioned between said first base and said second base to  
13   reciprocate between a first location with said sidebar simultaneously engaging said plug and said  
14   cylinder surrounding said plug, and a second location releasing said plug for rotation relative to the  
15   cylinder;

16 a locking device disposed within said apertures to reciprocate relative to said cylinder  
17 in response to a key inserted into said keyway to accommodate reciprocation of said sidebar relative  
18 to said plug and relative to said cylinder when the key while inserted into said keyway engages in  
19 a selected relation with said locking means, and obstructing said reciprocation absent said selected  
20 relation;

21 a second electrical conductor terminating with an electrical contact exposed to an  
22 exterior of said first base through said orifice;

23 an electronic logic circuit borne by said plug, coupled to receive electrical power and  
24 data signals via said first and second electrical conductors, and generating control signals in  
25 dependence upon said electrical power and data signals; and

26 an electrical operator borne by said plug, disposed within one of said apertures, said  
27 operator having a distal member radially traveling along an axis transverse to said longitudinal axis,  
28 in dependence upon said control signals between a first position relative to said exterior surface  
29 accommodating said reciprocation and a second and different position relative to said exterior  
30 surface obstructing said reciprocation in concert with said locking device.

1 7. (Amended) The plug of claim 6, comprising said locking device, logic circuit and  
2 electrical operator simultaneously experiencing said rotation relative to the cylinder whenever said  
3 plug rotates relative to the cylinder.

1 8. (Amended) The plug of claim 6, comprising said locking device, logic circuit and

2 electrical operator being wholly within the cylinder and travelling with said plug whenever said plug  
3 moves relative to the cylinder.

1 11. (Thrice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface;

4 a plug rotatable around said longitudinal axis while resident within said hollow  
5 recess, and a bar interposed between said shell and said plug to reciprocate generally along a radial  
6 plane between a first position engaging both said shell and said plug while obstructing rotation of  
7 said plug within said recess, and a second position accommodating said rotation, said plug  
8 comprising:

9 a first base bearing a keyway providing a first electrical conductor and an  
10 orifice spaced-apart from and separated by a mass of said plug from said keyway;

11 a second base separated by an axial length of said plug from said first base,  
12 said second base bearing means for supporting a cam;

13 an exterior surface extending between and engaging said first base and said  
14 second base;

15 a locking device responsive to a key inserted into said keyway to  
16 accommodate reciprocation of said bar between said first position and said second position  
17 when the key while inserted into said keyway engages in a selected relation with said locking  
18 device and obstructing said reciprocation absent said selected relation;



19 a second electrical conductor terminating with an electrical contact exposed  
20 to an exterior of said first base through said orifice;

21 an electronic logic circuit coupled to receive electrical power and data signals  
22 via said first and second electrical conductors, and generating control signals in dependence  
23 upon said electrical power and data signals; and

24 an electrical operator having a distal member radially reciprocating along an  
25 axis transverse to said longitudinal axis, in dependence upon said control signals between  
26 a first orientation relative to said exterior surface enabling said reciprocation and a second  
27 and different orientation relative to said exterior surface obstructing said reciprocation.

1 13. (Twice Amended) The plug of claim 6, further comprised of said:

2 electrical operator comprising an electrical coil coaxially aligned with said distal  
3 member, to move said distal member between said second position and said first position in response  
4 to said control signals; and

5 distal member bearing a circumferential surface blocking said radial movement of said  
6 sidebar while said distal member is in said second position, and a variation in said circumferential  
7 surface accommodating said reciprocation while said distal member is in said first position.

1 25. (Four times Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said  
5 hollow recess;

6 a bar interposed between said shell and said cylinder plug to reciprocate generally  
7 along a radial plane between a first position engaging both said shell and said plug while obstructing  
8 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

9 said cylinder plug comprising:

10 a first base and a second base separated by an axial length of said cylinder plug from  
11 said first base, said second base configured to support a cam; and

12 an electrical operator borne by said cylinder plug and rotatable with said cylinder  
13 plug, said electrical operator being electrically operable to respond to a control signal by  
14 moving independently of said bar between one of a first orientation accommodating relative  
15 movement between said bar and said cylinder plug and a second and different orientation  
16 providing obstruction of said bar, and another of said first orientation and said second  
17 orientation.

1 43. (Amended) A lock, comprising:

2 a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing  
3 a slot within said recess; and

4 a cylinder plug rotatable from a rest orientation around said longitudinal axis while  
5 resident within said hollow recess relative to said cylinder; and

6 an elongate member positioned between said cylinder and said cylinder plug, and

7 while extending into said slot, preventing rotation between said cylinder and said cylinder plug by  
8 making a direct simultaneous engagement of said cylinder and said cylinder plug while said plug  
9 remains in said rest orientation and, in response to a torque that is externally applied to said cylinder  
10 plug and that causes said rotation of said cylinder plug within said shell, exiting said slot while  
11 maintaining a second simultaneous engagement of said cylinder and said cylinder plug that  
12 accommodates said rotation;

13 said cylinder plug comprising:

14 a first base bearing an orifice spaced-apart from and separated by a mass of  
15 said cylinder plug;

16 a second base separated by an axial length of said cylinder plug from said first  
17 base, said second base disposed to support a cam, said mass being penetrated by a radially  
18 oriented aperture;

19 an exterior surface extending between said first base and said second base;  
20 a conductor having a terminal exposed to an exterior of said first base through  
21 said orifice;

22 an electronic logic circuit comprising a memory storing a code, said circuit  
23 being borne by said cylinder plug and coupled to receive data signals via said conductor, said  
24 circuit generating control signals in dependence upon a comparison between said code and  
25 information borne by said data signal;

26 an electrical operator mounted within said aperture, said operator having a  
27 movable member traveling in dependence upon said control signals between a first position

28 relative to said exterior surface maintaining said simultaneous engagement by blocking  
29 movement of said elongated member from said direct simultaneous engagement and a second  
30 and different position relative to said exterior surface accommodating movement between  
31 said plug and said cylinder; and

32 a component biasing said movable member to maintain said simultaneous  
33 engagement.

1 56. (Thrice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface;

4 a plug rotatable around said longitudinal axis while resident within said hollow  
5 recess;

6 an elongate member interposed between said shell and said plug to travel generally  
7 along a radial direction between a first position where said elongate member obstructs rotation  
8 between said shell and said plug by making a direct simultaneous engagement of both said shell and  
9 said plug, and in response to a torque that is externally applied to said plug and causes rotation of  
10 said plug within said shell, exiting said slot and traveling to a second position while maintaining a  
11 second simultaneous engagement of said shell and said plug that accommodates said rotation;

12 said plug comprising:

13 a first base perforated by an aperture, and a second base separated by an axial  
14 length of said plug from said first base, said second base bearing means for supporting a

15 cam;

16 a logic circuit borne by said plug and rotatable with said plug, conveying said  
17 data signal between said aperture to said logic circuit; and

18 an electrical operator responding to said control signals by moving  
19 independently of said travel by said elongate member in a second direction within a plane  
20 that maintains said simultaneous engagement by not aligned with said radial direction  
21 between one of a first orientation obstructing said travel and relative operable movement  
22 between said shell and said plug while said electrical operator is contained wholly within  
23 said plug, and a second and different orientation accommodating said travel and said relative  
24 operable movement between said shell and said plug, and another of said first orientation and  
25 said second orientation.

1 64. (Twice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said  
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial  
6 length of said cylinder plug from said first base, said second base bearing means for supporting a  
7 cam;

8 a sidebar interposed between said shell and said cylinder plug to travel generally  
9 along a radial plane between a first position engaging both said shell and said plug while obstructing

10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

11 a logic circuit generating an electrical control signal in response to a comparison

12 between a code set within said logic circuit and a data signal applied to said logic circuit;

13 an electrical conductor provided by said plug, conveying said data signal to said logic

14 circuit; and

15 an electrical operator borne by said cylinder plug and rotatable with said plug, said

16 electrical operator being electrically operable to respond to said control signal by moving in a

17 different plane independently of said travel by said sidebar, between one of a first orientation

18 providing obstruction of said travel and a second and different orientation accommodating said

19 travel, and another of said first orientation and said second orientation;

20 said sidebar having a first portion that is positioned to be optionally blocked by

21 another component of said lock functioning independently of said electrical operator to prevent said

22 travel of said sidebar, and a second portion that is positioned to be blocked from said travel by said

23 sidebar to said second position whenever said electrical operator is within said first orientation, and

24 a second portion that is positioned to be optionally blocked by another component of said lock.

1 85. (Twice Amended) An electromechanical lock cylinder, comprising:

2 an outer shell having a bore formed therein and a cavity extending from the bore into  
3 the shell;

4 a barrel disposed within the bore in the shell and being rotatable relative thereto;

5 a side bar cooperating between the shell and the barrel for selectively permitting and

6 blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging  
7 the barrel and a second portion removably received in the cavity in the shell, the side bar being  
8 movable relative to the barrel;

9 wherein at least one electromechanical locking member is disposed within the barrel  
10 and is positionable in a barrel blocking position blocking rotation of the barrel with respect to the  
11 shell, and also is positionable in a non-barrel blocking position permitting the side bar to be moved  
12 relative to the cavity in the shell to rotate the barrel with respect to the shell;

13 an electronically powered drive mechanism located within the barrel and cooperating  
14 with the electromechanical locking member to selectively move the locking member from the barrel  
15 blocking position to the non-barrel blocking position in which the side bar moves out of the cavity  
16 and engages the locking member; and

17 control means for activating the electronically powered drive mechanism in response  
18 to an authorized attempt to operate the lock cylinder.

1 89. (Amended) A rotatable lock barrel for insertion into a lock cylinder having a bore  
2 formed therein, the barrel comprising:

3 an elongated, generally cylindrically shaped barrel member having an exterior configured  
4 for receipt in a bore of a lock cylinder and an interior containing an electromechanical locking  
5 member, the barrel member having a recess formed therein;

6 wherein the locking member is disposed in the recess of the barrel member and is  
7 substantially entirely contained within the barrel member, the locking member including a groove

8 and the locking member being movable to a position in which the groove of the locking member is  
9 placed in an alignment;

10 the recess in said barrel member being configured to receive at least a portion of a movable  
11 side bar of a lock cylinder to permit the side bar to move into and out of engagement with the groove  
12 of the locking member for selectively permitting and blocking rotation of the barrel member with  
13 respect to a lock cylinder when positioned therein;

14 an electronically powered drive mechanism located within the barrel member for moving the  
15 electromechanical locking member to a position in which the groove of the locking member is in  
16 said alignment.

17 91. (Amended) A lock, comprising:

18 a shell containing a hollow recess defining a longitudinal axis and an interior  
19 cylindrical surface;

20 a cylinder plug rotatable around said longitudinal axis while resident within said  
21 hollow recess, said cylinder plug comprising a first base perforated by a keyway and a second base  
22 separated by an axial length of said cylinder plug from said first base, said second base disposed to  
23 support a cam;

24 a bar interposed between said shell and said cylinder plug to reciprocate generally  
25 along a radial plane between a first position engaging both said shell and said plug while obstructing  
26 rotation of said cylinder plug within said recess, and a second position accommodating said rotation



27 when a torque is externally applied to said keyway to rotate said cylinder plug within said shell;

28 a locking mechanism borne by and rotating with said cylinder plug, said locking  
29 mechanism being interposed between said cylinder plug and said bar, and exhibiting a first  
30 disposition hindering said reciprocation and, in response to insertion of a key in physical  
31 conformance to said locking mechanism, exhibiting a second and different disposition  
32 accommodating said reciprocation; and

33 an electrical operator borne by said cylinder plug and rotatable with said cylinder  
34 plug, said electrical operator being electrically operable to respond to a control signal by moving  
35 independently of said bar between a first orientation providing obstruction of said reciprocation by  
36 said bar and a second and different orientation removing said obstruction.

1 101. (Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said  
5 hollow recess, said cylinder plug comprising:

6 a first base and a second base separated by a mass and an axial length of said cylinder  
7 plug from said first base, said second base being configured to support a cam, said mass  
8 comprising a main body exhibiting a major exterior circumferential surface and a cylindrical  
9 sector exhibiting a lesser and minor exterior circumferential surface supplementing said main

10 body to endow said cylinder plug with a substantially cylindrical exterior shape that is  
11 removably insertable within said hollow recess;

12 an electrical operator encased within said cylindrical sector and rotatable with said  
13 cylinder plug, said electrical operator being electrically operable to respond to a control  
14 signal by moving between one of a first orientation obstructing rotation of said cylinder plug  
15 relative to said shell and a second and different orientation accommodating said rotation, and  
16 another of said first orientation and said second orientation; and

17 a logic circuit encased within said cylindrical sector generating said control signal in  
18 response to a comparison between a code set within said logic circuit and a data signal  
19 applied to said logic circuit.

Please add new claims 106 through 120, as follows:

--106. The lock of claim 14, further comprising said bar engaging both said shell and said  
plug during said movement between said plug and said cylinder.

1 --107. The lock of claim 25, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

3 --108. The lock of claim 46, further comprising said bar engaging both said shell and said  
4 cylinder plug during said rotation.

1           --109. The lock of claim 64, further comprising said sidebar engaging both said shell and  
2 said cylinder plug during said rotation.

1           --110. The lock of claim 65, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

1           --111. The lock of claim 70, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

1           --112. The lock of claim 75, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

1           --113. The lock of claim 76, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

1           --114. The lock of claim 77, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

1           --115. The lock of claim 85, further comprising said side bar engaging both said shell and

2 said barrel during said rotation.

1 --116. The lock of claim 91, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

1 --117. The lock of claim 92, further comprising said bar engaging both said shell and said  
2 cylinder plug during said rotation.

1 --118. A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface bearing a slot;

4 a cylinder plug rotatable around said longitudinal axis while resident within said  
5 hollow recess;

6 a bar borne by said cylinder plug, said bar having a distal edge extending in a radial  
7 direction to said longitudinal axis, and into said slot to form a simultaneous engagement of said shell  
8 and said cylinder plug while said lock is in a locked state, and said distal edge maintaining a  
9 simultaneous engagement of said shell and said cylinder plug after a torque that is externally applied  
10 to said cylinder plug causes rotation of said cylinder plug within said shell;

11 said cylinder plug comprising:

12 a first base and a second base separated by an axial length of said cylinder

13 plug from said first base, said second base being configured to support a cam;

14 an electronic logic circuit comprising a memory storing a code, said circuit  
15 generating control signals in dependence upon a comparison between said code and  
16 information borne by a data signal received by said cylinder plug from an external source;  
17 and

18 an electrical operator borne by said cylinder plug and rotatable with said  
19 cylinder plug, said electrical operator comprising an electrical coil and a movable member  
20 traveling in response to said coil, independently of said bar and in dependence upon said  
21 control signals, between a first position relative to said exterior surface maintaining said  
22 simultaneous engagement by blocking movement by said bar, and a second and different  
23 position relative to said exterior surface accommodating movement between said shell and  
24 said cylinder plug.

1 --119. The lock cylinder of claim 85, in which said side bar moves out of the cavity and  
2 engages the locking member to rotate the barrel and operate the lock.

1 --120. A rotatable lock barrel for insertion into a lock cylinder having a bore formed therein,  
2 the barrel comprising:

3 an elongated, generally cylindrically shaped barrel member having an exterior configured  
4 for receipt in a bore of a lock cylinder and an interior containing a plurality of electromechanical

locking members, the barrel member having a recess formed therein;

wherein the locking members are disposed in the recess of the barrel member and are substantially entirely contained within the barrel member, each of the locking members including a groove and the locking members being movable to a position in which the grooves of the locking members are aligned;

the recess in said barrel member being configured to receive at least a portion of a movable side bar of a lock cylinder to permit the side bar to move into and out of engagement with the grooves of the locking members for selectively permitting and blocking rotation of the barrel member with respect to a lock cylinder when positioned therein;

an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking members to a position in which the grooves of the locking members are aligned.--

**REMARKS**

Claims 1-56 and 64-120 remain pending in this application.

**Rejections Under The Second Paragraph Of 35 U.S.C. §112**

**Claims 85-88**

Claims 85-88 were rejected under the second paragraph of 35 U.S.C. §112 as being possible indefinite. The Examiner kindly noted the typographical error in line 12 of claim 85. That error has been corrected, and the basis for the rejection has been removed.

**Rejection Under 35 U.S.C. §102(b)**

**Claim 43**

Claim 43 was rejected under 35 U.S.C. §102(b) as anticipated by Gokcebay U.S. 5,552, 777.

Applicant traverses this rejection for the following reasons:

Applicant's claim 43 defines, among other features, a lock with a cylinder, a plug rotatable within a hollow recess provided by the cylinder, and an elongate member that is "positioned between said cylinder and plug" and that provides "simultaneously engagement of said cylinder and said plug while said plug remains in said rest orientation."

According to the Examiner, Gokcebay '777 "teaches all of the elements of the claimed invention including cylinder 46, plug 24, elongate member (pin tumblers not shown, col. 6, lines

61-62 ....)." The Examiner ignores the fact that under Section 102, all of the elements of the pending claims must be met by the cited art. Here, assuming that the "elongate member" is met by the pin tumblers mentioned in column 6, lines 61-62 of Gokcebay '777, there is absolutely no cooperation between those pin tumblers and the solenoid 36 and pin 38 of Gokcebay '777. Moreover, nothing in Gokcebay '777's solenoid 36 and pin 38 may be said to provide Applicant's structure of "maintaining simultaneously engagement" that is provided by Applicant's "elongate member" and is defined in lines 7 and 8 of claims 14 and 43. Furthermore, Gokcebay '777 expressly admits that his pin tumblers are the same as "a larger number of similar locks", and that it is the bitting of the mechanical key upon entry of that mechanical key into the keyway prior to and during the making of the electrical contact necessary to operate solenoid 36 and pin 38, that removes those pin tumblers from any of their simultaneously engagement with the cylinder and plug while rotation of the plug remains blocked by pin 38. Consequently, Gokcebay '777 relies upon the well-known bitting of the mechanical key to remove the simultaneously engagement prior to activation of his solenoid 36 and any subsequent movement of his blocking pin 38. Accordingly, Gokcebay '777 fails to anticipate Applicant's embodiment as defined by claim 43. Withdrawal of the rejection is required.

**Rejections Under 35 U.S.C. §103**

**Claims 14, 43 and 92**

Claims 14, 43 and 92 were all rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in



view of Naveda U.S. 4,416,127. Applicant respectfully traverses this rejection for the following reasons.

The Examiner incorrectly asserted that Gokcebay '777 is a continuation of Gokcebay '293; this is incorrect. Gokcebay '777 is in fact a continuation-in-part of Gokcebay '293. The Examiner is respectfully requested to correct the record in subsequent Office correspondence to correctly state that Gokcebay '777 is a continuation-in-part of Gokcebay '293.

**First**, the combination proposed by the Examiner would impermissibly destroy the ability of the primary reference to operate in its intended mode of operation. Gokcebay '777 expressly teaches a radially oriented solenoid 36 and blocking pin 38, together with the pin tumbler relied upon by the Examiner, mentioned in col. 6, lines 61 and 62. The alternative embodiment illustrated by Figure 7 of Thordmark '274 that is relied upon by the Examiner includes side tumblers 5 and side bar 7 mounted in the cylinder plug 3, while the coil 17 and the blocking element 11 are mounted within the shell rather than within the cylinder plug. Gokcebay '777 however, expressly teaches in col. 3, beginning with line 2, that all of electronics and hardware are "contained in the cylinder plug", and that nothing is "required outside of the lock cylinder" aside "from a small recess or bore which is provided in the cylinder shell." The combination proposed by the Examiner relies upon the hardware and electronics of Thordmark '274 that are necessarily housed within the shell, rather than within the cylinder plug as required by the primary reference. Moreover, that combination eliminates the small recess or bore of the primary reference, which the primary reference relies upon to assure a positive locking by allowing "for secondary locking high security mechanical features,

generally located in side of the cylinder plug.” See Gokcebay ‘777 at col. 6, beginning with 55. In short, both the simplicity and the secondary locking of the primary reference are removed by the Examiner’s proposed combination.

**Second**, Applicant’s claims 14, 43 and 92 define, among other features, a lock with a cylinder, a plug rotatable within a hollow recess provided by the cylinder, and an elongate member that is “positioned between said cylinder and plug” and that provides “simultaneously engagement of said cylinder and said plug while said plug remains in said rest orientation.” In support of this rejection, the Examiner has asserted that Gokcebay ‘777 teaches:

- a mechanical/electronic key and lock cylinder 46,
- having plug 24,
- pin tumblers (not shown, col. 6, lines 61-62),
- an orifice in the front face of the cylinder (housing contact/conductor 28 shown in Figure 3),
- a radially oriented aperture that houses electrical operator 36 [the Examiner’s attention is invited to the fact that the correct term used by Gokcebay ‘777 is “solenoid 36”, and that Gocckebay ‘777 is unable to accommodate any other type of “electrical operator” except “solenoid 36”] with a spring 48 biasing a movable member 38 [the Examiner’s attention is invited to the fact that the correct term used by Gokcebay ‘777 is “blocking pin 38”], and
- an electronic logic circuit (Figure 2, col. 5, line 59 through col. 6, line 37). [the Examiner’s attention is invited to the fact that the correct terms used by Gokcebay ‘777 are

“electronic ID device 32”, “addressable switch 34” and “components 36 and 40”; Gokcebay ‘777 does not purport to disclose a “logic circuit”].

The Examiner also asserted that Gokcebay ‘777:

- “fails to teach a bar which moves radially to the axis of the lock plug”
- “fails to teach ... the electronic operator having an electronic locking member which moves independently of the movement of the bar, side bar or elongate member” and
- “fails to teach ... the movement of the bar, side bar or elongate member which is reciprocated between a blocking and releasing position as a result of independent movement of the locking member.”

The Examiner then asserts that Thordmark ‘274 “teaches”:

- “a cylinder lock having an electronic operator 12”,
- “a movable electronic locking member 11 which alternatively allows and blocks reciprocation of a spring-biased side bar 10”[the Examiner’s attention is invited to the fact that Thordmark ‘274 already expressly teaches a “side bar 7 ”], and
- “the electrically actuated blocking element being mounted in the cylinder lock and not the plug.”

The Examiner further relied upon Naveda ‘127 for its suggestions about:

- the “size or geometric shape” of a key (col. 4, lin60), and
- the presence of an “electromagnet” that is “located in the receiver or alternatively in the body of the Key” (col. 9, lines 22-25).

It is unclear whether the Examiner's proposed combination relies upon the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 or the "latching element 10" of Thordmark '274, to meet Applicant's pending claims. An analysis of the Examiner's proposed combination incorporating the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 is discussed in the preceeding paragraph. To the extend that the Examiner incorporates the "latching element 10" of Thordmark '274 to meet the language of Applicant's pending claims, there are two structural impediments which make the Examiner's proposed combination untenable. First, claims 14, 43 and 92 respectively define a structure with "an electrical operator borne by said plug, said operator having a distal member having a distal member travelling in dependence upon said control signals between a first position relative to said exterior surface maintaining said simultaneous engagement" and "an electrical operator mounted within said aperture [in the mass of the plug] ... having a movable member travelling in dependence upon said control signal ... maintaining said simultaneous engagement." In contradistinction, in the Examiner's proposed combination, coil 17, blocking element 11 and latching element 10 of Thordmark '274 must reside in the cylinder shell in order to accommodate the existence of the top tumblers and side tumblers 5 for top code 4a and side code 4b that, as shown by Figs. 1 and 2, extend over substantially the entire axial length of plug 3. Second, coil 17, blocking element 11 and latching element 10 of Thordmark '274 are mounted within an axial recess. Wholly absent from the art relied upon by the Examiner to make this proposed combination is any teaching or suggestion of how to alter the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 (that form the "secondary locking

high security mechanical features" required by Gokcebay '777) to fit within the mass of plug 3 without displacing the combination of the keyway and the primary locking mechanism (formed by the top tumblers and side tumblers 5 for top code 4a and side code 4b). Applicant submits that evidence of the foolishness of the Examiner's proposed combination is shown by the fact that any miniaturization of the "secondary locking high security mechanical features" required by Gokcebay '777) to fit within the mass of plug 3 would necessarily diminish the ability of latching element 10 to resist "shear forces at the interface between plug and lock cylinder." See Thordmark '274, at column 2, lines 54-57. This miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 in order to mount these components within the plug of Gokcebay '777 essentially reduces latching element 10 to nothing more than "a latching pin." This is hardly an enhancement of security as is asserted by the Examiner. It should be noted however, that Thordmark '274 expressly warns that such structures as "latching pins or like devices will fracture even when only a relatively moderate force is used on the lock, therewith enabling the lock to be opened." Thordmark '274, col. 2, lines 57-61. In short, the Examiner's proposed combination is a deliberate and improper weakening of the "high security" demanded by Gokcebay '777 of such secondary locking mechanical features. See Gokcebay '777, at column 6, lines 55-56.

The suggestions of Naveda '127 about the "size or geometric shape" of a key (col. 4, lin60), and the presence of an "electromagnet" that is "located in the receiver or alternatively in the body of the Key" (col. 9, lines 22-25), have no relevance to these issues raised by the Examiner's miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of

Thordmark '274 in order to mount these components within the plug of Gokcebay '777; Naveda '127 has no plug.

In view of the fact that both the primary and secondary references teach away from such diminution of security, and nothing in Naveda '127 neither teaches nor suggests how to accommodate the presence of both the combination of the keyway 26 (of Gockebay '777) and the primary locking mechanism (formed for example, by the top tumblers and side tumblers 5 for top code 4a and side code 4b) and the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274. In contradistinction, Applicant's structure alone allows for a sidebar that may be axially extended over the entire length of the junction between the shell and the cylinder plug, a structure that, unlike the Examiner's proposed miniaturization, is better able to resist "shear forces at the interface between plug and lock cylinder." See Thordmark '274, at column 2, lines 54-57. Moreover, the Examiner's proposed combination makes no provision for either the "keyway" defined by Applicant's claim 14 or the placement of Applicant's electrical operator in a radially oriented aperture defined by Applicant's claim 43. Applicant questions whether the Examiner's proposed combination is able to provide Applicant's "independent relative movement between said bar and said cylinder plug" as defined by claim 92.

In short, formation of the axial recess in cylinder plug 24 of Gokcebay '777 necessary to accommodate the configuration of the secondary locking mechanism of coil 17, blocking element 11 and latching element 10 of Thordmark '274 would essentially cleave plug 24 in two, with the T-shaped element 20 on one side of the cleave and latching element 10 protruding from the other side

of that cleave, while any miniaturization of the secondary locking mechanism would be contrary to the express teachings of Thordmark '274 and would diminish the security which both Gokcebay '777 and Thordmark '274 teach; under 35 U.S.C. §103 the Examiner can not alone modify the structures taught by the primary and secondary references in a manner that would defeat the expressly articulated goal of those references. These deficiencies in the Examiner's proposed combination, together with the enhancement of the security provided thereby, are evidence of the non-obviousness of the lock defined by the structure of claims 14, 43 and 92 . Withdrawal of this rejection is therefore required.

**Third**, the Examiner has impermissibly neglected to examine "the subject matter" of claims 14 and 43 "as a whole" as required under the first paragraph of 35 U.S.C. §103. Specifically, the secondary locking mechanism of both Gokcebay '777 and Thordmark '274 operate wholly, completely and independently of their respectively pin tumblers and side tumblers. In contradistinction, Applicant teaches an "elongate member" that provides "simultaneously engagement of said cylinder and said plug" in combination with "electrical operator" that is disposed to maintain "said simultaneously engagement" provided by the elongate member. Neither the solenoid 36 and pin 38 of the primary reference nor the coil 17 of the secondary reference may be said to maintain Applicant's simultaneously engagement provided by the elongate member between the cylinder and the plug. Consequent, there is no *prima facie* showing of obviousness. It is this cooperation between the elements of Applicant's structure that has resulted in a compound mechanism that is both compact and reliable with the electrical operator reinforcing the locking

provided by the apparatus. In view of these and other distinctions, as well as the noted advantages flowing from those distinctions, the Examiner's proposed combination improperly fails to consider the "subject matter as a whole" and is required by 35 U.S.C. §103, and the rejection must be withdrawn.

**Fourth**, Applicant expressly defines in claim 43 a plug that is "penetrated by a radially orientated aperture" with "an electrical operator mounted within said aperture." The combination proposed by the Examiner is devoid of this combination, and instead relies upon an axial movement of armature 18. In short, the Examiner has neglected to consider the subject matter of Applicant's claim 43 in its entirety. Again, it is this feature defined by claim 43 that among other advantages, assures enhancement of the locking function. In view of this distinction and the advantages resulting therefrom, there may be no finding of obviousness as is required under Section 103. The rejection must therefore be withdrawn.

**Fifth**, and as was earlier noted, both the primary and secondary references rely upon bitted keys and the corresponding pin tumblers to provide their primary locking functions. As was also earlier noted, both of those primary locking functions are structurally independent of the "secondary locking 'high security' mechanical features" (see Gokcebay '777, col. 6, lines 55, 56). The Examiner's comments under 37 C.F.R. §1.104(c)(2) tend to become rambling and fail to clearly designate "the particular part relied on" in the three references that form the proposed combination. To the extent that the Examiner proposes to place the moving coil 17 and armature 18 of Thordmark '274 into the plug of Gokcebay '777, moving coil 71 and armature 18 will surely displace the



“conventional pin tumbler mechanical bittings” of Gokcebay (see Gokcebay ‘777, col. 6, line 62) from the cylinder plug and concomitantly, impermissibly destroy the ability of the primary reference to rely upon those “conventional pin tumbler mechanical bittings” as the primary locking mechanical feature; this is an improper combination under 35 U.S.C. § 103 and may not be relied upon to support an obviousness rejection.

**Sixth**, to the extent that the Examiner intends to have moveable coil 17 and blocking element 11 of Thordmark ‘274 in a radial orientation in the proposed combination, that configuration will simply replace solenoid 36 and blocking pin 38 of the primary reference because moveable coil 17 and blocking element 11 travel together. Moreover, blocking element 11 has no useful function in such a configuration. Furthermore, this configuration will still not meet the several features of claims 14 and 43 that are noted in the foregoing paragraphs, and the Examiner’s reliance upon Naveda ‘127 will not remedy these deficiencies.

**Seventh**, there is simply neither basis nor motivation for making the combination proposed by the Examiner except as an impermissible hindsight reconstruction of the art in the light provided only by Applicant’s claims. Thordmark ‘247 expressly denigrates the use of “radially directed elements” such as that taught by Gokcebay ‘777 (see Thordmark ‘274, col. 2, lines 50-60), and expressly states that his structure “is to eliminate the aforesaid drawbacks” (see Thordmark ‘274, col. 2, lines 64-65) that are attendant upon those “radially directed elements.” Neither the express limitations of Applicant’s claims nor this express denigration of the Examiner’s proposed combination may not be ignored in a determination of obviousness *vel non* because this denigration

by the secondary reference expressly negates the requisite motivation necessary to make the Examiner's proposed combination under 35 U.S.C. §103. Accordingly, the rejection is improper and can not stand.

**Claim 25**

Claim 25 was rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Applicant respectfully traverses this rejection for the following reasons.

In support of this rejection, the Examiner has asserted that Gokcebay '777 teaches:

- a mechanical/electronic key and lock cylinder 46,
- having plug 24,
- pin tumblers (not shown, col. 6, lines 61-62),
- an orifice in the front face of the cylinder (housing contact/conductor 28 shown in Figure 3),
- a radially oriented aperture that houses electrical operator 36 [the Examiner's attention is invited to the fact that the correct term used by Gokcebay '777 is "solenoid 36", and that Gockebay '777 is unable to accommodate any other type of "electrical operator" except "solenoid 36"] with a spring 48 biasing a movable member 38 [the Examiner's attention is invited to the fact that the correct term used by Gokcebay '777 is "blocking pin 38"], and
- an electronic logic circuit (Figure 2, col. 5, line 59 through col. 6, line 37). [the

Examiner's attention is invited to the fact that the correct terms used by Gokcebay '777 are "electronic ID device 32", "addressable switch 34" and "components 36 and 40"; Gokcebay '777 does not purport to disclose a "logic circuit"].

The Examiner also asserted that Gokcebay '777:

- "fails to teach a bar which moves radially to the axis of the lock plug"
- "fails to teach ... the electronic operator having an electronic locking member which moves independently of the movement of the bar, side bar or elongate member" and
- "fails to teach ... the movement of the bar, side bar or elongate member which is reciprocated between a blocking and releasing position as a result of independent movement of the locking member."

The Examiner then asserts that Thordmark '274 "teaches":

- "a cylinder lock having an electronic operator 12",
- "a movable electronic locking member 11 which alternatively allows and blocks reciprocation of a spring-biased side bar 10" [the Examiner's attention is invited to the fact that Thordmark '274 already expressly teaches a "side bar 7"; the Examiner's attention is invited to the fact that Thordmark '274 describes component "10" as a "latching element", *i.e.*, as a type of latch, rather than a sidebar as is already described by Thordmark '274], and
- "the electrically actuated blocking element being mounted in the cylinder lock and not the plug."

The Examiner further relied upon Naveda '127 for its suggestions about:

- the “size or geometric shape” of a key (col. 4, lin60), and
- the presence of an “electromagnet” that is “located in the receiver or alternatively in the body of the Key” (col. 9, lines 22-25).

**First**, the inability of Gokcebay ‘777 to provide Applicant’s “bar which moves radially to the axis of the lock plug”, “electronic operator having an electronic locking member which moves independently of the movement of the bar, side bar or elongate member” and “movement of the bar, side bar or elongate member which is reciprocated between a blocking and releasing position as a result of independent movement of the locking member” is not remedied by Thordmark ‘274 and Naveda ‘127 because neither either teach or suggest an electrical operator “borne by said cylinder plug and rotatable with said cylinder plug.” Moreover, neither teach how to incorporate a compound “electronic operator” into a cylinder plug in a manner that the “electronic operator” “borne by said cylinder plug and rotatable with said cylinder plug” as is defined by claim 25. The fact that the Examiner is able to find all of the parts of a claim scattered among several prior art references is not surprising, because most patentable inventions are combinations of old components. The fact that the several components parts of the claim are individually old in the art is irrelevant to the question of obviousness under 35 U.S.C. §103. The fact that the Examiner can rearrange those old parts into a configuration that meets the express language of the pending claims is also irrelevant to the question of obviousness under 35 U.S.C. §103. What the Examiner is doing is simply making a hindsight reconstruction of the art in the light provided by the claims of the Applicant. This conduct is itself convincing indicia of the non-obviousness of claim 25.

**Claim 46**

Claim 46 was rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Applicant respectfully traverses this rejection for the following reasons.

**First**, the lock defined by claim 46 has a “bar borne by said plug ... interposed between said shell and said cylinder plug to reciprocate generally along a radial plane” in combination with “an electrical operator ... obstructing movement of said bar ... in response to a first state of said control signal and by moving within a second and different plane not coextensive with said radial plane in response to application of said control signal ... .” The Examiner neglected to explain how movement in different planes could be obtained by the proposed combination; in fact, all movement in the proposed combination exists within the same plane. That is, how can the Examiner’s proposed combination be configured so that moveable coil 17 and blocking element 11 of Thordmark ‘274 move along non-aligned planes, a feature that provides a mechanical advantage and heightened security that is not available with the proposed combination. Accordingly, there is no *prima facie* showing of obviousness, and claim 46 is readily patentably distinguishable over the prior art.

**Second**, and as earlier noted, Applicant’s lock defined by claim 46 has a “bar borne by said plug ... interposed between said shell and said cylinder plug to reciprocate generally along a radial plane” in combination with “an electrical operator ... obstructing movement of said bar ... in response to a first state of said control signal and by moving within a second and different plane not coextensive with said radial plane in response to application of said control signal ... .” This feature

is wholly absent from the Examiner's proposed combination because the modification of Gokcebay '777 made by the Examiner has a "latching element 10, therewith enabling the latching element [10 of the proposed combination] to be pressed *radially outwards as the plug 3 is turned with the key 4.*" Thordmark '274, col. 5, lines 24-26. Whether by some force of magic or by simple hindsight reconstruction of the art, if moving coil 17 is somehow incorporated into cylinder plug 24 of Gokcebay '777, that same radially outward motion will remain as a constant. The fact that latching member 10 can not both travel *radially outwardly* as the cylinder plug rotates as is taught by the Examiner's proposed combination and be carried by the cylinder plug as the plug rotates as defined by Applicant's claim 46, prevents the Examiner's proposed combination from providing Applicant's "*bar borne by said plug ... interposed between said shell and said cylinder plug to reciprocate generally along a radial plane ...*." This difference is not trivial and must be considered in determining obviousness *vel non* because it is this difference that enables Applicant's bar to be carried with the cylinder plug and to cooperate with another locking mechanism carried by the cylinder plug. The Examiner's combination can no provide this advantage. Accordingly, claim 46 is patentably distinguishable and allowable.

#### Claim 56

Claim 56 was rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Applicant respectfully traverses this rejection for the following reasons.

The lock defined by claim 56 has “an elongate member interposed between said shell and said plug to travel generally along a radial direction” in combination with “an electrical operator responding to said control signal by moving in a second direction not aligned with said radial direction ... obstructing said travel ...” Wholly absent from the Examiner’s proposed combination is any teaching of how an electrical operator formed by moveable coil 17 and blocking element 11 of Thordmark ‘274 could be made to travel in any direction that is not aligned with said radial direction.” Moreover, the Examiner’s comments have neglected to explain how movement in different planes could be obtained by the proposed combination; in fact, all movement in the proposed combination exists only within the same plane. Accordingly, there is no *prima facie* showing of obviousness, and claim 56 is readily patentably distinguishable over the prior art.

**Claims 64, 65, 70, 75, 76 and 77**

Independent claims 64, 65, 70, 75, 76 and 77 were rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Applicant respectfully traverses this rejection for the following reasons.

**First**, the lock defined by claim 64 uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving independently of said travel by said bar,

between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating *said travel ...*.” As defined by claim 65, Applicant’s lock uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving in a second direction not aligned with said radial direction ... obstructing *said travel ...*.” Claim 70 uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along a geometric construct other than to said radial plane between one of a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel ... .” Claim 75 uses “a bar interposed between said shell and said cylinder plug to travel generally along a radial plane” in combination with “an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along a radial axis that is transverse to said radial plane between a first orientation providing obstruction of said travel and a second and different orientation accommodating said travel ... .” Claim 76 uses “an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is transverse to said second axis ... “ in combination with “an electrical operator borne by said cylinder plug and



rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving along said radial axis between one of a first orientation providing obstruction of *said travel* and a second and different orientation accommodating *said travel* ... ." Claim 77 however, uses "an elongate bar exhibiting a greatest longitudinal dimension along a second axis that extends transversely to said first base and to said second base, said bar being interposed between said shell and said cylinder plug to travel generally along a radial axis that is radial to said cylinder plug and transverse to said second axis, between a first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess ..." together with "an electrical operator borne by said cylinder plug and rotatable with said plug ... to respond to a control signal by moving between one of a first orientation providing obstruction of *said travel* ... ." Not only does the Examiner's proposed combination fail to meet these varied express geometric definitions, but Applicant's interaction between an electrical operator borne by and rotatable with the cylinder plug and the travel of the bar interposed between the shell and the cylinder plug is not found in the prior art, either taken as individual references or in the combination proposed by the Examiner simply because all of the references relied upon by the Examiner uniformly restrict movement to within a single plane. The substitution of moveable coil 17, blocking element 11 and latching element 10 of Thordmark '274 for solenoid 36 and blocking pin 38 of Gokcebay '777 necessary to construct the Examiner's proposed combination will prevent the proposed combination from achieving Applicant's travel and orientation. Consequently, the Examiner has failed to make a *prima facie* showing of obviousness. It is this difference in geometric movement, together with the defined

inter-cooperation that advantageously endow Applicant's embodiments with the enhanced security of the locking function that is available with neither the primary or either of the two secondary references. Independent claims 64, 65, 70, 75 and 76 are therefore patentably distinguishable, and allowable under 35 U.S.C. §103(a).

**Second**, the sole motivation provided in the art for the combination proposed by the Examiner is an impermissible reconstruction of the art in the light provided by Applicant alone. This, by itself, is convincing indicia of the patentability of claims 64, 65, 70, 75 and 76 under 35 U.S.C. §103.

**Third**, ostensibly, the prior art relied upon by the Examiner endeavors to provide a lock that may be easily retrofitted. Gokcebay '777 however, requires that a bore 50 be drilled within the shell of the existing lock while Thordmark '274 requires that a separate V-shaped groove 3c that is spaced-apart and distinct from the slot for sidebar 7, be machined within the cylinder, and that the entire recess shown in Figure 1 be machined into the shell. Contrary to the Examiner's assertions, neither Naveda '127 nor Thordmark '274 nor Gockebay '777 advocates both insertion of an electrical operator into the cylinder plug and some interaction between that plug borne operator and a bar, elongated member or sidebar that is able to make simultaneous engagement of both the shell and cylinder plug, because:

- Gockebay '777 teaches only insertion of a solenoid within the cylinder,
- Gockebay '777 is wholly devoid of any bar (other than the armature 18 that is itself a part of solenoid 17),

- Gockebay '777 is wholly devoid of any bar that provides any type of engagement between the shell and cylinder,

- Thordmark '274 teaches nothing about insertion of any operator within the cylinder,

- both Gockebay '777 and Thordmark '274 require not only complete replacement of the cylinder, but major alteration of the shell in order to accommodate a retrofit,

- both Gockebay '777 and Thordmark '274 are utterly incapable of providing any interaction with their primary locking mechanical features, and

- Naveda '127 is singularly devoid of any teaching of a cylinder plug and discloses no primary mechanical locking mechanism as is required by both Gockebay '777 and Thordmark '274,

- Naveda '127 fails to describe how traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777.

In contradistinction, Appellant's claims define a structure with an electrical operator borne by the cylinder plug, a member moving in response to the operator, and interaction between the operator and a bar, elongate member or sidebar interposed between the shell and the cylinder plug. Although these differences may appear to be but a small advance in the art, the advantages flowing from these differences are substantial. For example, only Applicant's claims define a structure with an electronic operator borne by the cylinder plug that interacts with a sidebar, elongate member or bar, and that consequently, is able to advantageously both retrofit an installed lock by the expedient of replacing only the cylinder plug *without any* alteration of the shell and to *interact or cooperate with* an existing sidebar of a primary mechanical locking mechanism that is positioned between the shell

and plug. The fact that both Gockebay '777 and Thordmark '274 are concerned with retrofitting of existing locks, a fact noted by the Examiner, and that both references require modification of the shell of the lock in order to complete that retrofitting, while Applicant alone provides a cylinder plug that may work with an existing sidebar and may be retrofit without any modification of the shell is a difference between the prior art and the structure defined by the pending claims that prevents the subject matter as a whole from being obviousness under 35 U.S.C. §103. This deficiency in the Examiner's proposed combination is not remedied by Naveda '127. Moreover, this deficiency is highlighted by the fact that Thordmark '274 clearly avoids either teaching or suggestion of any interaction or cooperation between sidebar 7 and coil 17.

This interaction with the existing sidebar beneficially enhances the security provided by Applicant's lock. Neither Gockebay '777, Thordmark '274 nor Naveda '127, nor the Examiner's proposed combination of Gockebay '777, Thordmark '274 and Naveda '127 are able to provide these advantages. Moreover, the Examiner's proposed combination is incomplete and fails to make a *prima facie* showing of obviousness; how, for example, is the traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777? No details of such a combination are provided by the Examiner's proposed combination. Accordingly, in view of these differences between the pending claims and the prior art, "the subject matter as a whole" can not be found to be rendered obvious under 35 U.S.C. §103. In short, the Examiner has unfairly sought to limit the scope of coverage to which Applicant is entitled by reconstructing the art in an effort to meet the terms of Applicant's claims when none of that art suggests such a simple

modification of the art as Applicant's electrical operator being both borne by and rotating with the cylinder plug *and* operating to block the travel of a sidebar. Accordingly, withdrawal of this rejection is required.

**Claims 85 - 89**

Independent claims 85 and 89, which Applicant copied from claims 1 and 14, respectively, of the Field U.S. Patent No. 5,839,307, were rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Applicant respectfully traverses this rejection for the following reasons.

**First**, Applicant notes that the Examiner improperly asserted that independent claim 90, copied from claim 19 of Field '307 patent, was withdrawn from consideration, even though claim 90 defines the salient features of Applicant's elected species. Moreover, the field of search is co-extensive with the elected species. Consideration of claim 90 is therefore required.

**Second**, the combination proposed by the Examiner would impermissibly destroy the ability of the primary reference to operate in its intended mode of operation. Gokcebay '777 expressly teaches a radially oriented solenoid 36 and blocking pin 38, together with the pin tumbler relied upon by the Examiner, mentioned in col. 6, lines 61 and 62. The alternative embodiment illustrated by Figure 7 of Thordmark '274 that is relied upon by the Examiner includes side tumblers 5 and side bar 7 mounted in the cylinder plug 3, while the coil 17 and the blocking element 11 are mounted

within the shell rather than within the cylinder plug. Gokcebay '777 however, expressly teaches in col. 3, beginning with line 2, that all of electronics and hardware are “contained in the cylinder plug”, and that nothing is “required outside of the lock cylinder” aside “from a small recess or bore which is provided in the cylinder shell.” The combination proposed by the Examiner relies upon the hardware and electronics of Thordmark '274 that are necessarily housed within the shell, rather than within the cylinder plug as required by the primary reference. Moreover, that combination eliminates the small recess or bore of the primary reference, which the primary reference relies upon to assure a positive locking by allowing “for secondary locking high security mechanical features, generally located in side of the cylinder plug.” See Gokcebay '777 at col. 6, beginning with 55. Consequently, the Examiner’s proposed combination fails to provide Applicant’s “electronically powered drive mechanism located within the barrel *and cooperating with* the electromechanical locking member to selectively move the locking member from the barrel blocking position ... .” In short, both the simplicity and the secondary locking of the primary reference are removed by the Examiner’s proposed combination.

**Third,** It is unclear whether the Examiner’s proposed combination relies upon the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 or the “latching element 10” of Thordmark '274, to meet Applicant’s pending claims. An analysis of the Examiner’s proposed combination incorporating the pin tumblers (not shown, col. 6, lines 61-62) of Gokcebay '777 is discussed in the preceeding paragraph. To the extend that the Examiner incorporates the “latching element 10” of Thordmark '274 to meet the language of Applicant’s pending claims, there are two

structural impediments which make the Examiner's proposed combination untenable. First, claims 85 and 89 respectively define a structure with "a side bar ... [and] an electronically powered drive mechanism located within the barrel *and cooperating with* the electromechanical locking member to selectively move the locking member from the barrel blocking position to the non-barrel blocking position in which the side bar moves out of the cavity ..." and "an electronically powered drive mechanism located within the barrel member for moving the electromechanical locking member to a position in which the groove of the locking member is in said alignment." In contradistinction, in the Examiner's proposed combination, coil 17, blocking element 11 and latching element 10 of Thordmark '274 must reside in the cylinder shell in order to accommodate the existence of the top tumblers and side tumblers 5 for top code 4a and side code 4b that, as shown by Figs. 1 and 2, extend over substantially the entire axial length of plug 3. Second, coil 17, blocking element 11 and latching element 10 of Thordmark '274 are mounted within an axial recess. Wholly absent from the art relied upon by the Examiner to make this proposed combination is any teaching or suggestion of how to alter the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274 (that form the "secondary locking high security mechanical features" required by Gokcebay '777) to fit within the mass of plug 3 without displacing the combination of the keyway and the primary locking mechanism (formed by the top tumblers and side tumblers 5 for top code 4a and side code 4b). Applicant submits that any miniaturization of the "secondary locking high security mechanical features" that may be required by Gokcebay '777) in order to fit within the mass of plug 3 would necessarily diminish the ability of latching element 10 to resist "shear forces at the

interface between plug and lock cylinder.” See Thordmark ‘274, at column 2, lines 54-57. This miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark ‘274 in order to mount these components within the plug of Gokcebay ‘777 essentially reduces latching element 10 to nothing more than “a latching pin.” This is hardly an enhancement of security as is asserted by the Examiner. It should be noted however, that Thordmark ‘274 expressly warns that such structures as “latching pins or like devices will fracture even when only a relatively moderate force is used on the lock, therewith enabling the lock to be opened.” Thordmark ‘274, col. 2, lines 57-61. In short, the Examiner’s proposed combination is a deliberate and improper weakening of the “high security” demanded by Gokcebay ‘777 of such secondary locking mechanical features. See Gokcebay ‘777, at column 6, lines 55-56.

The suggestions of Naveda ‘127 about the “size or geometric shape” of a key (col. 4, lin60), and the presence of an “electromagnet” that is “located in the receiver or alternatively in the body of the key” (col. 9, lines 22-25), are immaterial to these issues raised by the Examiner’s miniaturization of the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark ‘274 in order to mount these components within the plug of Gokcebay ‘777 because Naveda ‘127 teaches nothing about Applicant’s barrel member. Moreover, the “electromagnetic 36” of Naveda ‘127 is structurally and functionally different from Applicant’s “electronically powered drive mechanism.” Incorporation of “electromagnetic 36”, which is not small in size, into the plug of Gokcebay ‘777 will remedy none of the deficiencies in the Examiner’s proposed combination noted earlier in this response.



In view of the fact that both the primary and secondary references teach away from such diminution of security, and nothing in Naveda '127 neither teaches nor suggests how to accommodate the presence of both the combination of the keyway 26 (of Gockebay '777) and the primary locking mechanism (formed for example, by the top tumblers and side tumblers 5 for top code 4a and side code 4b) and the configuration of coil 17, blocking element 11 and latching element 10 of Thordmark '274. In contradistinction, Applicant's structure alone allows for a sidebar that may be axially extended over the entire length of the junction between the shell and the cylinder plug, a structure that, unlike the Examiner's proposed miniaturization, is better able to resist "shear forces at the interface between plug and lock cylinder." See Thordmark '274, at column 2, lines 54-57. Moreover, the Examiner's proposed combination makes no provision for either "side bar cooperating between the shell and the barrel ... wherein at least one electromechanical locking member is disposed within the barrel and is positionable in a barrel blocking position" as defined by claim 85 or the "locking member including a groove" that is "disposed within the recess of the barrel member" defined by Applicant's claim 89.

In short, formation of the axial recess in cylinder plug 24 of Gokcebay '777 necessary to accommodate the configuration of the secondary locking mechanism of coil 17, blocking element 11 and latching element 10 of Thordmark '274 would essentially cleave plug 24 in two, with the T-shaped element 20 on one side of the cleave and latching element 10 protruding from the other side of that cleave, while any miniaturization of the secondary locking mechanism would be contrary to the express teachings of Thordmark '274 and would diminish the security which both Gokcebay

'777 and Thordmark '274 teach; under 35 U.S.C. §103 the Examiner can not alone modify the structures taught by the primary and secondary references in a manner that would defeat the expressly articulated goal of those references. These deficiencies in the Examiner's proposed combination, together with the enhancement of the security provided thereby, are evidence of the non-obviousness of the lock defined by the structure of claims 85 through 89. Withdrawal of this rejection is therefore required.

### **Claim 91**

Claim 91 was rejected under 35 U.S.C. §103(a) as rendered obvious by the proposed combination of Gokcebay '777 modified according to the Thordmark U.S. 5,542,274 in view of Naveda U.S. 4,416,127. Applicant respectfully traverses this rejection for the following reasons.

**First**, the lock defined by claim 91 uses "a bar interposed between said shell and said cylinder plug to reciprocate generally along a radial plane" in combination with "an electrical operator borne by said cylinder plug and rotatable with said plug, said electrical operator being electrically operable to respond to said control signal by moving independently of said bar between a first orientation providing obstruction of *said reciprocation* by said bar and a second and different orientation removing said obstruction." The sole motivation provided in the art for the combination proposed by the Examiner is an impermissible reconstruction of the art in the light provided by Applicant alone. This, by itself, is convincing indicia of the patentability of claims 64, 65, 70, 75 and 76 under 35 U.S.C. §103.

**Second**, ostensibly, all of the art relied upon by the Examiner endeavors to provide a lock that may be easily retrofitted. Gokcebay '777 however, requires that a bore 50 be drilled within the shell of the existing lock while Thordmark '274 requires that a separate V-shaped groove 3c that is spaced-apart and distinct from the slot for sidebar 7, be machined within the cylinder, and that the entire recess shown in Figure 1 be machined into the shell. Contrary to the Examiner's assertions, neither Naveda '127 nor Thordmark '274 nor Gockebay '777 advocates both insertion of an electrical operator into the cylinder plug and some interaction between that plug borne operator and a bar, elongated member or sidebar that is able to make simultaneous engagement of both the shell and cylinder plug, because:

- Gockebay '777 teaches only insertion of a solenoid within the cylinder,
- Gockebay '777 is wholly devoid of any bar (other than the armature 18 that is itself a part of solenoid 17),
- Gockebay '777 is wholly devoid of any bar that provides any type of engagement between the shell and cylinder,
- Thordmark '274 teaches nothing about insertion of any operator within the cylinder,
- both Gockebay '777 and Thordmark '274 require not only complete replacement of the cylinder, but major alteration of the shell in order to accommodate a retrofit,
- both Gockebay '777 and Thordmark '274 are utterly incapable of providing any interaction with their primary locking mechanical features, and
- Naveda '127 is singularly devoid of any teaching of a cylinder plug and discloses no

primary mechanical locking mechanism as is required by both Gockebay '777 and Thordmark '274,

- Naveda '127 fails to describe how traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777.

In contradistinction, Appellant's claims define a structure with an electrical operator borne by the cylinder plug, a member moving in response to the operator, and interaction between the operator and a bar, elongate member or sidebar interposed between the shell and the cylinder plug. Although these differences may appear to be but a small advance in the art, the advantages flowing from these differences are substantial. For example, only Applicant's claims define a structure with an electronic operator borne by the cylinder plug that interacts with a sidebar, elongate member or bar, and that consequently, is able to advantageously both retrofit an installed lock by the expedient of replacing only the cylinder plug *without any* alteration of the shell and to *interact or cooperate with* an existing sidebar of a primary mechanical locking mechanism that is positioned between the shell and plug. The fact that both Gockebay '777 and Thordmark '274 are concerned with retrofitting of existing locks, a fact noted by the Examiner, and that both references require modification of the shell of the lock in order to complete that retrofitting, while Applicant alone provides a cylinder plug that may work with an existing sidebar and may be retrofit without any modification of the shell is a difference between the prior art and the structure defined by the pending claims that prevents the subject matter as a whole from being obviousness under 35 U.S.C. §103. This deficiency in the Examiner's proposed combination is not remedied by Naveda '127. Moreover, this deficiency is highlighted by the fact that Thordmark '274 clearly avoids either teaching or suggestion of any

interaction or cooperation between sidebar 7 and coil 17.

This interaction with an existing sidebar beneficially enhances the security provided by Applicant's lock. Neither Gockebay '777, Thordmark '274 nor Naveda '127, nor the Examiner's proposed combination of Gockebay '777, Thordmark '274 and Naveda '127 are able to provide these advantages. Moreover, the Examiner's proposed combination is incomplete and fails to make a *prima facie* showing of obviousness; how, for example, is the traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777? No details of such a combination are provided by the Examiner's proposed combination. Accordingly, in view of these differences between the pending claims and the prior art, "the subject matter as a whole" can not be found to be rendered obvious under 35 U.S.C. §103. In short, the Examiner has unfairly sought to limit the scope of coverage to which Applicant is entitled by reconstructing the art in an effort to meet the terms of Applicant's claims when none of that art suggests such a simple modification of the art as Applicant's electrical operator being both borne by and rotating with the cylinder plug *and* operating to block the travel of a sidebar. Accordingly, withdrawal of this rejection is required.

Claim 91 was rejected under 35 U.S.C. §103(a) as rendered obvious by the same proposed combination of Gokcebay '777 and Thordmark '274. Applicant respectfully traverses this rejection for all the reasons set forth in the foregoing paragraphs.

Additionally, Applicant notes that the Examiner's proposed combination is devoid of such

as further patentably distinguishing features as Applicant's "locking mechanism" that is "interposed between said cylinder plug and said bar." The foolishness with which the Examiner has conducted the examination may be best exhibited by a careful examination of both the references that the Examiner has repeatedly misrepresented in the examination. Neither those references may be said by the Examiner to accomplish in combination, what neither accomplishes alone. Even if by some rogue interpretation of §103 unsupported by either by the Commissioner or 35 U.S.C. §103 the Examiner is able to provide the Applicant's electrical operator bore by the cylinder plug, the Examiner is not able to demonstrate a locking mechanism that is "interposed between said cylinder plug and said plug." Applicant questions which noun in the phrase "locking mechanism" is not understood. This clear definition of cooperation between the several elements of Applicant's claim 91 provides both primary and secondary security, in the manner neither in vision nor suggested by the Examiner's proposed combination. Accordingly, claim 95 is separately patentably distinguishable and allowable. Withdrawal of the rejection is required.

Applicant notes that the Examiner has now asserted that claims copies from the Field '307 patent are patentably distinguishable from the claims issued in the Field '307 patent; the Examiner has provided no explanation for the assertion, except to assert that the copy claims are not "identical" to those appearing in Field '307. The Examiner is reminded that *ad hoc* determinations of this nature are not justified and illegal. The Examiner has no authority to deviate from the *Manual*. As explained therein, "in order for an application claim to be for 'substantially the same subject matter'

as a patent claim, it must contain all the material limitations of the patent claim.” There is no support for the Examiner’s invention, that the proposed account interference must be identical to one of the claims in the issued patent. If the Examiner persists in these rogue inventions, the Examiner is then requested to comply with §1003(6) which requires “actions which hold on patentable claims copied from the patent for interference whether grounds relied upon are equally applicable to the patentee,” in accordance with §2307.02 of the MPEP, the matter must be submitted the Group director, together with references to the section of the *Manual* for approval. In short, the Examiner lacks authority to reject independent claims 85, 89 or 90. Moreover, the Examiner is without authority to assert that process claim 90 has been withdrawn from consideration. Process claim 90 has never been the subject matter of election of species, and the Examiner has failed to provide any basis or authorization for its withdrawn. Its examination is required therefore.

#### **Claims 106-120**

Applicant notes that newly presented claim 120 is a copy of claim 14 of the Field ‘307 patent. The several components have been previously identified in the Applicant’s earlier filed responses. Applicant further notes that dependent claim 119 is directed to the language on lines 7-18 of column 9, it is copied from claim 1 of Field ‘307 patent. Consequently, claim 119 and 120 are identical to claims 1 and 14 of Field ‘307 patent. This language was previously presented within the one year period of time, and the language from claim 1 of Field ‘307 was removed because it is not believed to be technically accurate. It is presented solely in view of the Examiner’s insistence that she has

authority to act independently of the Group Director and without authorization of the Group Director, to ignore Applicant's previous request for Declaration of Interference and that she has authority to make all rejections of copy claims without approval or authorization from the Group Director.

Applicant further notes that the Examiner has asserted that she has been authorized by the Group Director to make all rejections of copy claims and to ignore Applicant's request for interference.

Applicant respectfully repeats the request for an interference.

Dependent claims 106-117 are newly presented to define further patentably distinguishable features of Applicant's invention. The bar, or sidebar, defined in these claims engages both shell and the cylinder plug during the rotation, a feature absent from the Examiner's primary reference. The Examiner has neglected to explain how the proposed combination might be modified to accomplish this engagement. It is this engagement that enables embodiments of Applicant's invention to provide both a primary and secondary locking. Accordingly, these claims are deemed patentably distinguishable and allowable over the prior art.

Independent claim 118 is newly presented to define two states of simultaneous engagement, in cooperation with the electrical operator comprising a coil and a movable member bore by the cylinder plug. Claim 118 is deemed patentably distinguishable and allowable for the same reasons as claims 14, 25, 43 and 92.



### Conclusion

35 U.S.C. §103 requires consideration of whether the differences between the subject matter defined by each pending claim and the prior art are such that the “subject matter as a whole” would have been obvious? Under U.S. practice, “[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *In re Fritch*, 972 F.2d 1260, 1266, n.14, 23 USPQ2d 1780, 1783-84, n.14 (Fed Cir. 1992), citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is further established that the Examiner must make specific findings on a suggestion to combine prior art references. *In re Dembiczak*, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999).

As demonstrated by the foregoing paragraphs, the Examiner has focused not on the subject matter of Applicant's claims as a whole, but has focused upon individual limitations. Ostensibly, the prior art relied upon by the Examiner endeavors to provide a lock that may be easily retrofitted. Gokcebay '777 however, requires that a bore 50 be drilled within the shell of the existing lock while Thordmark '274 requires that a separate V-shaped groove 3c that is spaced-apart and distinct from the slot for sidebar 7, be machined within the cylinder, and that the entire recess shown in Figure 1 be machined into the shell. Contrary to the Examiner's assertions, neither Naveda '127 nor Thordmark '274 nor Gockebay '777 advocates both insertion of an electrical operator into the cylinder plug and some interaction between that plug borne operator and a bar, elongated member or sidebar that is able to make simultaneous engagement of both the shell and cylinder plug, because:

- Gockebay '777 teaches only insertion of a solenoid within the cylinder,
- Gockebay '777 is wholly devoid of any bar (other than the armature 18 that is itself a part of solenoid 17),
- Gockebay '777 is wholly devoid of any bar that provides any type of engagement between the shell and cylinder,
- Thordmark '274 teaches nothing about insertion of any operator within the cylinder,
- both Gockebay '777 and Thordmark '274 require not only complete replacement of the cylinder, but major alteration of the shell in order to accommodate a retrofit,
- both Gockebay '777 and Thordmark '274 are utterly incapable of providing any interaction with their primary locking mechanical features, and
- Naveda '127 is singularly devoid of any teaching of a cylinder plug and discloses no primary mechanical locking mechanism as is required by both Gockebay '777 and Thordmark '274,
- Naveda '127 fails to describe how traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777.

In contradistinction, Appellant's claims define a structure with an electrical operator borne by the cylinder plug, a member moving in response to the operator, and interaction between the operator and a bar, elongate member or sidebar interposed between the shell and the cylinder plug. Although these differences may appear to be but a small advance in the art, the advantages flowing from these differences are substantial. For example, only Applicant's claims define a structure with an electronic operator borne by the cylinder plug that interacts with a sidebar, elongate member or bar,

and that consequently, is able to advantageously both retrofit an installed lock by the expedient of replacing only the cylinder plug *without any* alteration of the shell and to *interact or cooperate with* an existing sidebar of a primary mechanical locking mechanism that is positioned between the shell and plug. The fact that both Gockebay '777 and Thordmark '274 are concerned with retrofitting of existing locks, a fact noted by the Examiner, and that both references require modification of the shell of the lock in order to complete that retrofitting, while Applicant alone provides a cylinder plug that may work with an existing sidebar and may be retrofit without any modification of the shell is a difference between the prior art and the structure defined by the pending claims that prevents the subject matter as a whole from being obviousness under 35 U.S.C. §103. This deficiency in the Examiner's proposed combination is not remedied by Naveda '127. Moreover, this deficiency is highlighted by the fact that Thordmark '274 clearly avoids either teaching or suggestion of any interaction or cooperation between sidebar 7 and coil 17.

This interaction with the existing sidebar beneficially enhances the security provided by Applicant's lock. Neither Gockebay '777, Thordmark '274 nor Naveda '127, nor the Examiner's proposed combination of Gockebay '777, Thordmark '274 and Naveda '127 are able to provide these advantages. Moreover, the Examiner's proposed combination is incomplete and fails to make a *prima facie* showing of obviousness; how, for example, is the traveling coil 17, armature 18 and latching element 10 of Fig. 7 of Thordmark '274 incorporated into the plug of Gockebay '777? No details of such a combination are provided by the Examiner's proposed combination. Accordingly, in view of these differences between the pending claims and the prior art, "the subject matter as a

whole” can not be found to be rendered obvious under 35 U.S.C. §103. In short, the Examiner has unfairly sought to limit the scope of coverage to which Applicant is entitled by reconstructing the art in an effort to meet the terms of Applicant’s claims when none of that art suggests such a simple modification of the art as Applicant’s electrical operator being both borne by and rotating with the cylinder plug *and* operating to block the travel of a sidebar. Evidence of that error in the formation of the Examiner’s proposed combination lies in the fact that the proposed combination is depends upon a primary reference that discloses numerous embodiments of an invention, but none of those several embodiments derive any advantage from the modifications required to construct the Examiner’s proposed combination; those modifications simply produce a more cumbersome structure with more parts that accomplishes nothing that the primary reference does not achieve without those modifications. This is evidence of a lack of motivation in the art to make the modifications necessary to construct the Examiner’s proposed combination, as well as evidence that the Examiner is simply using Applicant’s claims as a blueprint in an impermissible effort to make a hindsight reconstruction of the art.

An improvement made in such a very crowded and ancient art is further evidence of non-obviousness. Consequently, withdrawal of this rejection and allowance of claims 14, 15, 25 through 31, 39 through 44, 46 through 52, 54 through 56, 64, 65, 70 through 72, 74 through 79, 81 through 89, 91 through 93 and 95 through 100 is required.

Claims 46 through 49

Claims 46 through 49 were separately rejected under 35 U.S.C. §103 over a proposed combination of Gockebay '777, Aston U.S. Patent No. 5,351,042 and Naveda '127. Applicant respectfully traverses this rejection for the following reasons.

In analyzing the applied art, the Examiner recognized that:

- Gockebay '777 is wholly devoid of any bar which moves radially to the axis of the lok plug, and

- Gockebay '777 is wholly devoid of any electronic operator having an electronic locking member which moves independently of the movement of the bar, sidebar or elongate member which is reciprocated between a blocking and releasing position as a result of independent movement of the locking member.”

The Examiner then relies upon Aston '042 for its teaching of a NiTiNOL wire 40 to move “in a direction different from the locking bar 42.”

**First**, the Examiner is reminded that the requirement for restriction has been made final, and the basis for that restriction was that the different embodiments disclosed were patentably distinct. The Examiner’s proposed combination corresponds to non-elected subject matter, and may not be used to question the patentability of these claims.

**Second**, the Examiner erroneously asserts that “electronic locking member 40 moves in a direction different from the locking bar 42 and is located in a lock cylinder and engages locking bar 42 which co-acts with a slot found in the plug.” The Examiner’s attention is invited to the express language of rejected claim 46. Specifically, Applicant’s bar is defined as “two reciprocate generally

along a radial plane” while Applicant’s “electrical operator” is defined as “moving within an second and different plane not co-extensive with said radial plane.” In contrary distinction, the Examiner’s proposed combination shows wire 40 moving in precisely the same plane as locking bar 42 of Aston ‘042. It is very difficult to understand why the Examiner has deliberately distorted the language of Applicant’s claim, but it suffices to note that this is improper under any standard of 35 U.S.C. §103. Withdrawal of the rejection and allowance of claims 46 through 49 is therefore respectfully required.

**Third**, the Examiner relies upon Naveda ‘127 to assert that “the electric magnet may be located in the receiver or alternatively in the body of the key having any size of geometrical shape.” It is very difficult to understand the Examiner’s fixation upon the size or geometrical shape of the key; this has nothing to do with the express language of rejected claim 46. Moreover, location of the electric magnet within the key or alternatively, within the receiver is relevant to the language of claim 46, simply because Naveda ‘127 lacks a cylinder plug. It is not clear therefore, how the teachings of Naveda ‘127 might be incorporated into Gokcebay '777 without removing the solenoid 36 of Gokcebay '777 from the cylinder plug and placing the solenoid 36 into the key. This proposed combination fails to make a *prima facie* showing of the obviousness of claim 46. Withdrawal of this rejection is therefore respectfully required.

#### **Claims 65-67 and 69**

Claims 65 through 67 and 69 were separately rejected under 35 U.S.C. §103(a) as rendered obvious by proposed combination of Sengupta U.S. 4,807,454 and Gokcebay '777. Applicant

respectfully traverses this rejection for the following reasons.

The lock defined by claim 65 has “a bar between said shell and said cylinder plug to travel generally along a radial plane between a first position engaging both said shell and said plug while obstruction rotation of said cylinder plug within said recess, and a second position accommodating said rotation” in combination with “an electrical operator comprising an armature, said armature being borne by said cylinder plug and rotating around said longitudinal axis with said plug ...”

**First**, the Examiner’s proposed combination is simply devoid of suggestion of Applicant’s “bar interposed between said shell and said cylinder plug to travel generally along with a radial plane between the first position engaging both said shell and said plug while obstructing rotation of said cylinder plug within said recess, and the second position accommodating said rotation.” Consequently, the Examiner has not made a *prima facie* showing of obviousness.

**Second**, the Examiner’s proposed modification of Sengupta ‘454 impermissibly prevents Sengupta from operating in its intended mode of operation. In Sengupta ‘454, no cylinder plug is shown, and both the coil and the armature are wholly external to any core. Moreover, the Examiner’s attention is invited to column 2, beginning with line 56 of the primary reference. That reference expressly teaches that “when the electromagnet coil 10 is *not* energized, the locking pin member 30 is free to move axially and the displaceable member comprising half shells 2 and 3 is free to be displaced or rotated relative to the stationary member 1.” “Cylinder plug 24” is rotatable in Gokcebay ‘777 however, “only when blocking pin 38 has been retracted by small solenoid 36.” See Gokcebay ‘777, col. 6, beginning with line 38. Moreover, the primary reference expressly teaches

selective coupling of half shells 2, 3 to the core of the lock. The Examiner's attention is invited to observe that the primary reference requires two different features of lost motion, neither of which can be preserved by the Examiner's suggested modification to incorporate selected features of the secondary reference, and that consequently the Examiner's proposed modification would impermissibly rob the primary reference of this flexibility of operation, without achieving Applicant's structure as defined by claim 65. Moreover, the Examiner's reliance upon a fictitious "miniature solenoid 10 and blocking member 30" (see page 13 of the Examiner's comments) is sheer fantasy. Gokcebay '777 already teaches a "miniature solenoid". The Examiner has provided neither teaching nor suggestions that the solenoid of Gokcebay '777 might feasibly be further reduced in size. The location and interaction with other components, not size, is what is significant to the solenoid or motor here. Consequently, the Examiner artful re-arrangement of the applied art is not only fictitious, but impractical. Accordingly, withdrawal of the rejection is required.


A fee of \$294.00 is incurred by addition of 11 dependent claims in this Amendment. Applicant's check drawn to the order of Commissioner in the amount of \$294.00 is attached. Should the check become lost, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

In view of the foregoing amendments and remarks, all claims are deemed to be in condition for allowance. Entry of these amendments, withdrawal of all rejections and passage of this



application to issue is respectfully requested. Should questions remain unresolved however, the Examiner is requested to telephone Applicant's undersigned attorney.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**

1           6. (Four Times Amended)   A lock, comprising:

2                   a cylinder containing a hollow recess defining a longitudinal axis;

3                   a plug bearing a plurality of open radially oriented apertures forming an array, said  
4 plug being rotatable around said longitudinal axis while resident within said hollow recess, said plug  
5 comprising:

6                   a first base bearing a keyway providing a first electrical conductor and an  
7 orifice spaced-apart from and separated by a mass of said plug from said keyway;

8                   a second base separated by an axial length of said plug from said first base,  
9 said second base bearing means for supporting a cam;

10                  an exterior surface extending between and engaging said first base and said  
11 second base;

12                  a sidebar positioned between said first base and said second base to  
13 reciprocate between a first location with said sidebar simultaneously engaging said plug and said  
14 cylinder surrounding said plug, and a second location releasing said plug for rotation relative to the  
15 cylinder;

16                  a locking [means] device disposed within said apertures to reciprocate relative to said

17 cylinder in response to a key inserted into said keyway to accommodate reciprocation of said sidebar  
18 relative to said plug and relative to said cylinder when the key while inserted into said keyway  
19 engages in a selected relation with said locking means, and obstructing said reciprocation absent said  
20 selected relation;

21 a second electrical conductor terminating with an electrical contact exposed to an  
22 exterior of said first base through said orifice;

23 an electronic logic circuit borne by said plug, coupled to receive electrical power and  
24 data signals via said first and second electrical conductors, and generating control signals in  
25 dependence upon said electrical power and data signals; and

26 an electrical operator borne by said plug, disposed within one of said apertures, said  
27 operator having a distal member radially traveling along an axis transverse to said longitudinal axis,  
28 in dependence upon said control signals between a first position relative to said exterior surface  
29 accommodating said reciprocation and a second and different position relative to said exterior  
30 surface obstructing said reciprocation in concert with said locking [mean] device.

1 7. (Amended) The plug of claim 6, comprising said locking [means] device, logic circuit  
2 and electrical operator simultaneously experiencing said rotation relative to the cylinder whenever  
3 said plug rotates relative to the cylinder.

1 8. (Amended) The plug of claim 6, comprising said locking [means] device, logic circuit and

electrical operator being wholly within the cylinder and travelling with said plug whenever said plug moves relative to the cylinder.

11. (Thrice Amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a plug rotatable around said longitudinal axis while resident within said hollow recess, and a bar interposed between said shell and said plug to reciprocate generally along a radial plane between a first position engaging both said shell and said plug while obstructing rotation of said plug within said recess, and a second position accommodating said [rotatio] rotation, said plug comprising:

a first base bearing a keyway providing a first electrical conductor and an orifice spaced-apart from and separated by a mass of said plug from said keyway;

a second base separated by an axial length of said plug from said first base, said second base bearing means for supporting a cam;

an exterior surface extending between and engaging said first base and said second base;

a locking [means] device responsive to a key inserted into said keyway to accommodate reciprocation of said bar between said first position and said second position when the key while inserted into said keyway engages in a selected relation with said locking

18 [means] device and obstructing said reciprocation absent said selected relation;

19 a second electrical conductor terminating with an electrical contact exposed  
20 to an exterior of said first base through said orifice;

21 an electronic logic circuit coupled to receive electrical power and data signals  
22 via said first and second electrical conductors, and generating control signals in dependence  
23 upon said electrical power and data signals; and

24 an electrical operator having a distal member radially reciprocating along an  
25 axis transverse to said longitudinal axis, in dependence upon said control signals between  
26 a first orientation relative to said exterior surface enabling said reciprocation and a second  
27 and different orientation relative to said exterior surface obstructing said reciprocation.

1 13. (Twice Amended) The plug of claim 6, further comprised of said:

2 electrical operator comprising an electrical coil coaxially aligned with said distal  
3 member, to [more] move said distal member between said second position and said first position in  
4 response to said control signals; and

5 distal member bearing a circumferential surface blocking said radial movement of said  
6 sidebar while said distal member is in said second position, and a variation in said circumferential  
7 surface accommodating said reciprocation while said distal member is in said first position.

1 25. (Four times Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said  
5 hollow recess;

6 a bar interposed between said shell and said cylinder plug to reciprocate generally  
7 along a radial plane between a first position engaging both said shell and said plug while obstructing  
8 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

9 said cylinder plug comprising:

10 a first base and a second base separated by an axial length of said cylinder plug from  
11 said first base, said second base configured to support a cam; and

12 an electrical operator borne by said cylinder plug and rotatable with said cylinder  
13 plug, said electrical operator being electrically operable to respond to a control signal by  
14 moving independently of said bar between one of a first orientation accommodating relative  
15 movement between said bar and said cylinder plug and a second and different orientation  
16 providing obstruction of said bar, and another of said first orientation and said second  
17 orientation.

1 43. (Amended) A lock, comprising:

2 a cylinder containing a hollow interior recess defining a longitudinal axis, and bearing  
3 a slot within said recess; and

4 a cylinder plug rotatable from a rest orientation around said longitudinal axis while  
5 resident within said hollow recess relative to said cylinder; and

6 an elongate member positioned between said cylinder and said cylinder plug, and  
7 while extending into said slot, [and providing] preventing rotation between said cylinder and said  
8 cylinder plug by making a direct simultaneous engagement of said cylinder and said cylinder plug  
9 while said plug remains in said rest orientation and, in response to a torque that is externally applied  
10 to said cylinder plug and that causes said rotation of said cylinder plug within said shell, exiting said  
11 slot while maintaining a second simultaneous engagement of said cylinder and said cylinder plug  
12 that accommodates said rotation;

13 said cylinder plug comprising:

14 a first base bearing an orifice spaced-apart from and separated by a mass of  
15 said cylinder plug [from said keyway];

16 a second base separated by an axial length of said cylinder plug from said first  
17 base, said second base disposed to support a cam, said mass being penetrated by a radially  
18 oriented aperture;

19 an exterior surface extending between said first base and said second base;

20 a conductor having a terminal exposed to an exterior of said first base through  
21 said orifice;

22 an electronic logic circuit comprising a memory storing a code, said circuit  
23 being borne by said cylinder plug and coupled to receive data signals via said conductor, said

24 circuit generating control signals in dependence upon a comparison between said code and  
25 information borne by said data signal;

26 an electrical operator mounted within said aperture, said operator having a  
27 movable member traveling in dependence upon said control signals between a first position  
28 relative to said exterior surface maintaining said simultaneous engagement by blocking  
29 movement of said elongated member from said direct simultaneous engagement and a second  
30 and different position relative to said exterior surface accommodating movement between  
31 said plug and said cylinder; and

32 a component biasing said movable member to maintain said simultaneous  
33 engagement.

1 56. (Thrice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior  
3 cylindrical surface;

4 a plug rotatable around said longitudinal axis while resident within said hollow  
5 recess;

6 an elongate member interposed between said shell and said plug to travel generally  
7 along a radial direction between a first position [engaging] where said elongate member obstructs  
8 rotation between said shell and said plug by making a direct simultaneous engagement of both said  
9 shell and said plug [while obstructing rotation of said plug within said recess], and in response to



10 a torque that is externally applied to said plug and causes rotation of said plug within said shell,  
11 exiting said slot and traveling to a second position [accommodating] while maintaining a second  
12 simultaneous engagement of said shell and said plug that accommodates said rotation;

13 said plug comprising:

14 a first base perforated by an aperture, and a second base separated by an axial  
15 length of said plug from said first base, said second base bearing means for supporting a  
16 cam;

17 a logic circuit borne by said plug and rotatable with said plug, conveying said  
18 data signal between said aperture to said logic circuit; and

19 an electrical operator responding to said control signals by moving  
20 independently of said travel by said elongate member in a second direction within a plane  
21 that maintains said simultaneous engagement by not aligned with said radial direction  
22 between one of a first orientation obstructing said travel and relative operable movement  
23 between said shell and said plug while said electrical operator is contained wholly within  
24 said plug, and a second and different orientation accommodating said travel and said relative  
25 operable movement between said shell and said plug, and another of said first orientation and  
26 said second orientation.

1 64. (Twice Amended) A lock, comprising:

2 a shell containing a hollow recess defining a longitudinal axis and an interior

3 cylindrical surface;

4 a cylinder plug rotatable around said longitudinal axis while resident within said  
5 hollow recess, said cylinder plug comprising a first base and a second base separated by an axial  
6 length of said cylinder plug from said first base, said second base bearing means for supporting a  
7 cam;

8 a [bar] sidebar interposed between said shell and said cylinder plug to travel generally  
9 along a radial plane between a first position engaging both said shell and said plug while obstructing  
10 rotation of said cylinder plug within said recess, and a second position accommodating said rotation;

11 a logic circuit generating an electrical control signal in response to a comparison  
12 between a code set within said logic circuit and a data signal applied to said logic circuit;

13 an electrical conductor provided by said plug, conveying said data signal to said logic  
14 circuit; and

15 an electrical operator borne by said cylinder plug and rotatable with said plug, said  
16 electrical operator being electrically operable to respond to said control signal by moving in a  
17 different plane independently of said travel by said [bar] sidebar, between one of a first orientation  
18 providing obstruction of said travel and a second and different orientation accommodating said  
19 travel, and another of said first orientation and said second orientation;

20 said sidebar having a first portion that is positioned to be optionally blocked by  
21 another component of said lock functioning independently of said electrical operator to prevent said  
22 travel of said sidebar, and a second portion that is positioned to be blocked from said travel by said

23 sidebar to said second position whenever said electrical operator is within said first orientation, and  
24 a second portion that is positioned to be optionally blocked by another component of said lock.

1 85. (Twice Amended) An electromechanical lock cylinder, comprising:

2 an outer shell having a bore formed therein and a cavity extending from the bore into  
3 the shell;

4 a barrel disposed within the bore in the shell and being rotatable relative thereto;

5 a side bar cooperating between the shell and the barrel for selectively permitting and  
6 blocking rotation of the barrel with respect to the shell, the side bar having a first portion engaging  
7 the barrel and a second portion removably received in the cavity in the shell, the side bar being  
8 movable relative to the barrel;

9 wherein at least one electromechanical locking member is disposed within the barrel  
10 and is positionable in a barrel blocking position blocking rotation of the barrel with respect to the  
11 shell, and also is positionable in a non-barrel blocking position [blocking] permitting the side bar  
12 to be moved relative to the cavity in the shell to rotate the barrel with respect to the shell;

13 an electronically powered drive mechanism located within the barrel and cooperating  
14 with the electromechanical locking member to selectively move the locking member from the barrel  
15 blocking position to the non-barrel blocking position in which the side bar moves out of the cavity  
16 and engages the locking member; and

17 control means for activating the electronically powered drive mechanism in response

18 to an authorized attempt to operate the lock cylinder.

1 89. (Amended) A rotatable lock barrel for insertion into a lock cylinder having a bore formed  
2 therein, the barrel comprising:

3 an elongated, generally cylindrically shaped barrel member having an exterior configured  
4 for receipt in a bore of a lock cylinder and an interior containing an electromechanical locking  
5 member, the barrel member having a recess formed therein;

6 wherein the locking member is disposed in the recess of the barrel member and is  
7 substantially entirely contained within the barrel member, the locking member including a groove  
8 and the locking member being movable to a position in which the groove of the locking member is  
9 placed in an [alignment] alignment;

10 the recess in said barrel member being configured to receive at least a portion of a movable  
11 side bar of a lock cylinder to permit the side bar to move into and out of engagement with the groove  
12 of the locking member for selectively permitting and blocking rotation of the barrel member with  
13 respect to a lock cylinder when positioned therein;

14 an electronically powered drive mechanism located within the barrel member for moving the  
15 electromechanical locking member to a position in which the groove of the locking member is in  
16 said alignment.

17 91. (Amended) A lock, comprising:

18 a shell containing a hollow recess defining a longitudinal axis and an interior  
19 cylindrical surface;

20 a cylinder plug rotatable around said longitudinal axis while resident within said  
21 hollow recess, said cylinder plug comprising a first base perforated by a keyway and a second base  
22 separated by an axial length of said cylinder plug from said first base, said second base disposed to  
23 support a cam;

24 a bar interposed between said shell and said cylinder plug to reciprocate generally  
25 along a radial plane between a first position engaging both said shell and said plug while obstructing  
26 rotation of said cylinder plug within said recess, and a second position accommodating said rotation  
27 when a torque is externally applied to said keyway to rotate said cylinder plug within said shell;

28 a locking mechanism borne by and rotating with said cylinder plug, said locking  
29 mechanism being interposed between said cylinder plug and said bar, and exhibiting a first  
30 disposition hindering said reciprocation and, in response to insertion of a key in physical  
31 conformance to said locking mechanism, exhibiting a second and different disposition  
32 accommodating said reciprocation; and

33 an electrical operator borne by said cylinder plug and rotatable with said cylinder  
34 plug, said electrical operator being electrically operable to respond to a control signal by moving  
35 independently of said bar between a first orientation providing obstruction of said reciprocation by  
36 said bar and a second and different orientation removing said obstruction.

101. (Amended) A lock, comprising:

a shell containing a hollow recess defining a longitudinal axis and an interior cylindrical surface;

a cylinder plug rotatable around said longitudinal axis while resident within said hollow recess, said cylinder plug comprising:

a first base and a second base separated by a mass and an axial length of said cylinder plug from said first base, said second base being configured to support a cam, said mass comprising a main body exhibiting a major exterior circumferential surface and a cylindrical sector exhibiting a lesser and minor exterior circumferential surface supplementing said main body to endow said cylinder plug with a substantially cylindrical exterior shape that is removably insertable within said hollow recess;

an electrical operator encased within said [axial] cylindrical sector and rotatable with said cylinder plug, said electrical operator being electrically operable to respond to a control signal by moving between one of a first orientation obstructing rotation of said cylinder plug relative to said shell and a second and different orientation accommodating said rotation, and another of said first orientation and said second orientation; and

a logic circuit encased within said [axial] cylindrical sector generating said control signal in response to a comparison between a code set within said logic circuit and a data signal applied to said logic circuit.